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Short Communication

Awareness About Sickle Cell Anemia in Postgraduate Students of Biotechnology

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Abstract

Sickle cell anemia is a monogenic disorder. It's not a disease rather there is a combination of inherent blood disorders that feature the tendency for erythrocytes to change into crescent or so-called sickle shapes. In the β-globin gene a missense mutation in a homozygous form causes polymerization of hemoglobin S leads to sickle cell disease. In this study, a questioner was given to the postgraduate students of Institute of Molecular Biology and Biotechnology for the awareness about sickle cell anemia. Different views are obtained from M. phil students about its awareness. Total 38 students solved these questionnaire, 32 females and 6 males. The responses of these questions were analysed. It was concluded that 97.36% students said that sickle cell anemia is a genetic disorder and transferred to offspring's from parents. 76.31% said it is curable by medicines and surgery. Results exhibits some students were aware and some are not aware about sickle cell anemia. Objective of this study is to aware postgraduate students of Bahauddin Zakariya University Multan about sickle cell anemia disease.

Keywords: Sickle Cell Anemia; β-Globin Gene; Missense Mutation; Haemoglobin S; Erythrocytes; Sickle Shapes

Introduction

Sickle cell anemia is a most prevalent inherited and monogenic disorder [1]. There are about 90,000 people in the United States have Sick cell disease, and more than 275,000 children born around the world every year [2,3]. Sickle hemoglobin (HbS) reduces the red cells deformability and polymerizes on deoxygenation. Since it's not a disease rather, there is a combination of inherent blood disorders that feature the tendency for erythrocytes to change into crescent or so-called sickle shapes [4]. Blood flow disrupts in small vessels due to these abnormal sickle shaped-erythrocytes, leads to inflammation and distal tissue ischaemia with acute painful sickle-cell crisis symptoms [4]. Ongoing haemolytic anaemia and repeated sickling lead to chronic organ damage and parenchymal injury, causing early mortality and substantial morbidity. The inheritance of abnormal beta-globin alleles stemming from the sickle mutation on the HBB gene (Glu6Val, βS) caused sickle cell disease. It is more severe in homozygous form HbSS (sickle cell anaemia). Global burden of sick cell disease is very high and are addressing inadvertently. The well-resourced countries should pay attention to the renewal efforts better diagnosis and treatment, aimed at reducing the crushing deadly disease of the disease worldwide [5]. The objective of this study was to reveal the consciousness of Molecular Biology and Biotechnology students of **BAHUADDIN UNIVERSITY MULTAN** about sickle cell anemia.

Methodology

A questioner was established to access the awareness of students of PAKISTAN about diseases of sickle cell anemia. This is a rare disease in our country. Few question asked about this disease to the students (almost 15 questions). Students of postgraduate had different views or awareness about sickle cell anemia. 38 students were selected from Institute of Molecular Biology and Biotechnology (IMBB) of BAHUDDIN ZAKARIYA UNIVERSITY (BZU) MULTAN. The inclusion criteria were for M. Phil student and exclusion criteria were not for BS student.

Views of postgraduate students of Molecular Biology and Biotechnology about sickle cell anemia disorder

Results and Discussion

Consciousness of postgraduate student about sickle cell anemia's etiology is given in table 2. On about sickle cell anemia as it was viral infection, 100% males and females gave their answer in ''NO''. On bacterial and fungal infection 100% males and females answers were ''NO''. 100% males and said sickle cell anemia is a

Sickle cell anemia is a	Yes	No
1. Metabolic disease/ problem		
2. Is Sickle cell anemia Fungal infection		
3. Bacterial disease		
4. Genetic disorder		
5. Viral disease		
Ever affected from sickle cell anemia		
6. Is your relative suffer		
7. In Your family		
8. In you		
9. Is your neighbour suffer		
10. Is your friend suffer		
Sickle cell anemia is pass on by		
11. From generation to generation		
12. Blood transfusion or People Contacts		
Sickle cell anemia may be treated by		
13. Surgery		
14. Medicines/drugs		
15. Don't worry, it is effortlessly treatable		

Table 1: Questionnaire to assess the awareness about Sickle cell anemia's etiology.

genetic disease. 96.87% female students said it is a genetic disease while 3.12% have opposite answer. 83.33% males said sickle cell anemia is a metabolic problem while 16.66% males have opposite answer similarly 53.12% females said ''YES'' while 46.87% females said ''NO'' (table 2).

Questions	Male		Female		Total	
	Yes	No	Yes	No	Yes	No
1. Metabolic disease	83. 33%	16. 66%	53. 12%	46. 87%	57. 89%	42. 105%
2. Viral disease	0%	100%	0%	100%	0%	100%
3. Genetic disease	100%	0%	96. 87%	3. 12%	97. 36%	2.63%
4. Bacterial disease	0%	100%	0%	100%	0%	100%
5. Fungal disease	0%	100%	0%	100%	0%	100%

Table 2: Consciousness about sickle cell anemia's etiology**:** Assessments of Postgraduate Students of Molecular Biology and Biotechnology.

100% male and female students have not sickle cell anemia. 0% male students and 3.12% female student's families were suffered from obesity while 100% male and 96.37% female students families were not suffered from sickle cell anemia respectively, 16.66% male and 21.87% female students relatives were suffered from that disease whereas 83.33% males and 78.12% female's relatives were not. 83.33% males and 87.5% female's neighbours were not suffered from sickle cell anemia while 16.66% male students and 12.5%female student's neighbours were suffered from sickle cell anemia. 0% male and 12.5% female student's friends were suffered from this disease while 100% male and 87.5% female student's friend was not suffered (table 3).

Ever affected from sickle cell anemia	Male		Female		Total	
	Yes	No	Yes	No	Yes	No
1. In Your relative	16. 66%	83. 33%	21. 87%	78. 12%	21. 05%	78. 94%
2. Is in Your family	0%	100%	3. 12%	96. 87%	2. 63%	97. 36%
3. In You	0%	100%	0%	100%	0%	100%
4. In Your neighbour	16. 66%	83. 33%	12. 5%	87. 5%	15. 62%	86. 84%
5. In Your friend	0%	100%	12. 5%	87. 5%	10. 52%	89. 47%

Table 3: Consciousness about sickle cell anemia's etiology**:** Assessments of Postgraduate sStudents of Molecular Biology and Biotechnology.

16.66% males and 34.37% females said ''YES'' about spreading of sickle cell anemia by people contact or blood transfusion while 83.33% males and 65.62% said ''NO'', 100% males said sickle cell anemia spread by parents to their offspring whereas 96.87% female students said ''YES'' while 3.12% have opposite answers. 83.33% male students said that sickle cell anemia was treated by medicine while 16.6% said '' NO'', whereas 81.25% female students said ''YES'' and 18.75% ''NO''. 5.26% students said it was treated by surgery and easily curable instead of that 78.94% students said it was not cured by surgery and also not easily treatable respectively (table 4).

As other papers concerned awareness about sickle cell anemia in childhood lead to the many disease issues in adult. Similar type of work were conducted by Africans and Americans [6].

Sickle cell anemia is pass on by	Male		Female		Total	
	Yes	No	Yes	No	Yes	No
1. From generation to generation	100%	0%	96. 87%	3. 12%	97. 36%	2. 63%
2. Is transfer by blood transfusion or contacts	16. 66%	83. 33%	34. 37%	65. 62%	31. 57%	68. 42%

Table 4: Consciousness about sickle cell anemia's etiology**:** Assessments of Postgraduate Student of Molecular Biology and Biotechnology.

Conclusion

It is concluded from the study that 97.36% students said sickle cell anemia is a genetic disorder, and 97.36 students come to an agreement that it is a transferable genetic disorder, from parents to offsprings. 76.31% said it is curable by medicines and surgery. So it is concluded that some postgraduate students of institute of molecular biology and biotechnology were fully aware and some were not aware about sickle cell anemia disorder.

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